

REMARKS/ARGUMENTS

Claims 1-30 and 81-113 are pending in the present application. Claims 2-11, 13-30, 85, 87-91 and 93 have been withdrawn from consideration. Claims 1, 12, 81 and 86 have been amended. Reexamination and reconsideration of Claims 1, 12, 81-84, 86, 92 and 94-113, as amended, are respectfully requested.

The Examiner rejected claims 1, 12, 81-84, 86, 92, 94-113 as being unpatentable over U.S. 3,211,354 to Dugard (hereinafter "the '354 reference") in view of U.S. 5,395,046 to Knobbe (hereinafter "the '046 reference.") Claims 1, 12, 81 and 86 have been amended. This rejection has been respectfully traversed with respect to claims 1, 12, 81-84, 86, 92, 94-113, as amended.

The present invention is directed to a desoldering system as shown in Fig. 1. The system has at its forward end, a tip 38 and a heater cartridge 16 which is adjacent to and along the axis of the tip 38. At the other end, the system has a first handle 12 which defines a cavity to accept a storage 14 for collecting solder which is retrieved through the tip 38. The storage, or a solder collection storage cartridge, 14 can be inserted into or removed from the first handle 12 without opening the first handle 12. A first trigger 43 is provided on an engagement member 42 of the first handle. A second handle 18 is also provided and it has a second trigger 26. The second handle 18 can be adapted by connecting it to the first handle 12 so that when the second trigger 46 is triggered, it triggers the first trigger 43.

Claims 1 and 81

Claim 1 has been amended to include "an unheated storage adapted to retain the solder" (emphasis added.) The present invention is provided with a solder collection storage cartridge which has no heating element in its immediate vicinity. In contrast, the system of the '354 reference employs three heating elements 35, 36, 37 that surrounds a tubular portion 22 where the solder collects. The collected solder must be kept at a sufficiently high temperature so that it can flow out. The three surrounding heating elements 35, 36, 37 around the tubular portion 22 keep the sucked solder

heated so as to keep it in a molten condition. Please see the '354 reference, col. 4, lines 30-34 and 65-67. The cartridge of the present invention has no need to keep the collected solder in a molten state because the cartridge itself can be removed and cleaned out irrespective of the state of the solder therein. It is therefore clear that the '354 reference fails to disclose or suggest the requisite unheated storage adapted to retain the solder as claimed in claim 1, as amended.

The '046 reference is directed to a spray paint gun. It is entirely unrelated to a desoldering system and accordingly fails to show or suggest the unheated storage for solder. In short, it fails to make up for the deficiencies of the '354 reference.

Claim 81 has been amended to require an unheated storage to retain solder as in claim 1, as amended. Claim 81, as amended, is allowable for the same reasons presented above with respect to claim 1, as amended.

Claims 12 and 92

Claims 12 and 92 require first and second handles having first and second triggers, respectively. They further require that the first and second handles adapted to be coupled with each other and when they are coupled together, an actuation of the second trigger causes the first trigger a) to turn on or off a vacuum source to the tip for desoldering (claim 12) or b) to provide power to the tip to melt solder (claim 92). Figure 1 of the present application shows the first handle 12 having a first trigger 43 and a second handle 18 having a second trigger 46. The first trigger 43 turns on and off a vacuum source as claimed in claim 12 and/or to provide power to the tip as claimed in claim 92.

In contrast, in the '354 reference system, the vacuum source is turned on or off not by anything on its handle (51, 52) but elsewhere. Please see the '354 reference first paragraph, col. 3. Once the vacuum pump is in operation, air passes through a vent 47. Then, when the thumb is placed over the upper end of the vent 47, air will pass through the channel 20 in the tip 17, the tube 21 of the tip 17, the tubular portion 22 of the head 12, the apertures 27-27 of the insert 26, the channel 30 thereof and to the pump. The vent 47 does not turn on or off the vacuum pump. That control is done

elsewhere. Therefore, even if the vent is somehow said to be a trigger on a handle as in the first trigger of the claimed first handle, since it does not turn on or off the pump, it cannot be the requisite "first trigger to turn on or off a vacuum source" as claimed in claim 12. Moreover, having no requisite first trigger, it fails to disclose or suggest the claimed second trigger which "causes the first trigger to turn on or off a vacuum source" of claim 12.

Further, the vent 47 has nothing to do with the power source. There is therefore nothing even close to the claimed first trigger, or "the second trigger whose activation causes the activation of the first trigger to provide power to the tip" of claim 92.

The '046 reference fails to disclose or suggest the provision of the first trigger which can be actuated by the actuation of the second trigger as claimed in claims 12 and 92. Even if the second handle of the system of the '046 reference were somehow combined with the '354 system as suggested by the Examiner, the resultant system would not be the same as the present invention. The vent 47 of the '354 reference is meant to be covered by a thumb to change the air pressure therein. The trigger 77 of the '046 system is electrically connected with the main body thereof. There is nothing to suggest that they can be easily combined, if at all.

Claim 86

Claim 86 requires that a tool tip and a heater cartridge define a solder suction channel defining a longitudinal channel axis. In the '354 reference, three heater elements 35, 36, 37 are provided in the peripheral portion of a housing 10 and surrounding the tubular portion 22 but away from it. In the system of '354 reference, a tip 17 has a channel 20 which feeds into the tubular portion 22. Please see Figures 1 and 2 of the '354 reference. However, none of the heater elements 35, 36, 37 is provided concentric with the tubular portion 22. The tip 17 and any of the heater elements 35, 36, 37 combined therefore do not define a solder suction channel having a longitudinal channel axis in the '354 system. Accordingly, the system of '354 reference fails to show or suggest the requisite "the tool tip and the heater cartridge defining a solder suction channel having a longitudinal channel axis" as claimed in claim 86.

The '046 reference is a spray gun, and has no desoldering function or capability. It shows nothing that is relevant here and hence fails to make up for the deficiencies of the '354 system.

Claim 105

Claim 105 requires a solder collection storage cartridge and a first handle whose exterior surface has "a recess defining a solder collection storage cartridge cavity." The cavity as claimed is adapted such that "when the solder collection storage cartridge is operatively positioned in the cavity, the cartridge is communicable with the vacuum source to suck solder through the desoldering channel into the cartridge." The cavity is further "adapted to allow the cartridge to be directly inserted into and removed from the cavity without opening the first handle." The desoldering apparatus of the present invention employs the solder collection storage 14 which fits into the cavity 20 of the first handle 12. The solder collection storage cartridge 14 can be inserted into and removed from the cavity 20 without taking the first handle 12 apart.

In contrast, the '354 reference system employs a tubular portion 22 of a housing 10 to collect the removed solder. The tubular portion 22 is not a cartridge which can be inserted into and removed from a part of a handle. The tubular portion 22 along with the head 12 is a part of the housing 10, and cannot be called a cartridge in any sense of the word at all.

Further, "an exterior surface of the first handle" as claimed has "a recess defining a solder collection storage cartridge cavity." There is only one handle in the '354 reference system. The handle has an outer portion 51 and an inner portion 52. The '354 system handle cannot be the claimed "first handle" because it does not support the tip 17. The claim requires a first handle "supporting the desoldering tip" among others. In the '354 system, the tip 17 is supported by the head 12 of the housing 10. Even assuming that the handle of the '354 reference system were a "first handle" and assuming that the tubular portion 22 and the head 12 were a solder collection cartridge, the exterior surface of the '354 handle does not define a recess defining a solder collection storage cartridge cavity. The tubular portion 22 and the head 12 are

provided away from the handle in the '354 system, and they do not fit into the handle to define a cavity or recess therefor.

The handle of the '354 system further lacks the requisite first trigger. Nowhere on the handle of that system, is there a triggering mechanism. And, as the Examiner stated, the '354 system lacks a second handle having a second trigger. The '046 reference does not make up the deficiencies of the '354 reference.

Conclusion

As discussed above with respect to claims 1, 12, 81, 86, 92 and 105, the '354 system has many deficiencies, and the secondary reference, the '046 reference fails to make up for the deficiencies. Therefore, it is clear that the rejection under 35 U.S.C. 103 over these two references has been overcome.

Claims 98-104 depend from claim 1; claims 82-84 depend from claim 81; claims 94-97 depend from claim 92; and claims 106-113 depend from claim 105 and these dependent claims are allowable for the same reasons as stated above for their respective independent claims. It is respectfully requested that the outstanding rejection over 35 U.S.C. 103 be withdrawn.

In view of the foregoing, the claims, as amended, are in condition for allowance. Reexamination and reconsideration of the claims, as amended, are respectfully requested and allowance at an early date is solicited.

The Commissioner is hereby authorized to charge any additional fees which may be required, or credit any overpayment to Deposit Account No. 07-1853 (order No. 47434.57.)

Respectfully submitted,

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